INTRAVAGINAL DEVICE

FIELD OF THE INVENTION

[0001] The present invention, in some embodiments thereof, relates to a gynecological device and, more particularly, but not exclusively, to a collapsible and expandable intravaginal device suitable for at least one gynecological purpose in particular and women's health in general.

BACKGROUND OF THE INVENTION

[0002] Many gynecological devices are known in the art for various uses such as, for example, contraception, the blocking or collection of menses of the human female, and the release of pharmacological substances into the vaginal cavity. These include high absorbency tampons wherein menses fluid is absorbed into the material of the tampons, cups that block the passage of vaginal secretions and/or menses fluid discharged from the cervix, vaginal carriers which release pharmaceutical substances, and other intravaginal devices having various materials, structures and purposes.

[0003] U.S. Pat. No. 5,295,984 (Contente et al.) is an example of a vaginal discharge collection device, which has an elastomeric rim and a flexible film reservoir.

[0004] U.S. Pat. No. 6,168,609 (Kamen et al.) discusses a catamenial collector that "has a receptacle with a flexible hollow rim capable of inflation and has a handle with substantially the length of a female vagina. The collector may have a string . . . extending through the rim and at least a portion of the handle so that a pulling force axially applied to a string end causes the receptacle to close. In another embodiment, an elastic member is so configured that deflation of the rim also causes the receptacle to close" (abstract).

[0005] U.S. Pat. No. 9,827,136 to Applicant discusses a "catamenial device . . . including: a flexible resilient menstrual cup (MC), which includes: at least two resilient ribs extending inwardly from the inner surface of the MC base; an elastic rim frame connected to the top of the ribs; a reservoir bag connected to the rim in a sealed manner for collecting the menstrual fluid; and a withdrawal string . . . The MC has a drogue like structure comprising at least two flexible ribs having arcuate vertical struts (AVS) structure connected to a flat base. The ribs are connected to the elastic rim frame with at least two flexible arcuate horizontal struts (AHS)" (abstract).

[0006] U.S. Pat. No. 6,332,878 (Wray et al.) discusses a device which "has a cup shaped to fit over the cervix and has an attached pouch defining a reservoir that contains an absorbent material. A port having a fabric cover permits menstrual flow from the uterus to pass into the reservoir. The device, which is flexible and resilient, is folded in one end of an applicator used to insert the device into the vagina. The device is shaped to automatically fit into and remain in position over the cervix after the device is ejected from the applicator" (abstract).

[0007] U.S. Pat. No. 4,381,771 teaches a "contraceptive, cervical cover, including a dome-like main portion which is shaped to cover the cervix, long extending lips which form a one-way valve to permit waste material to out of the cervix and an outwardly biased collar which holds the cover securely to the walls of the vaginal surrounding the cervix."

[0008] Additional background art includes U.S. Pat. No. 7,771,344 (ConTIPI Ltd.); WO 2017/010800 (Loon Lab); and WO 2016 042310 (Goodwin, et al.), KR 20160109503A, and U.S. Patent Application Publication No. 2016/0278988.

SUMMARY OF THE INVENTION

[0009] Unless otherwise defined, all technical and/or scientific terms used herein have the same meaning as commonly understood by one of ordinary skill in the art to which the invention pertains. Although methods and materials similar or equivalent to those described herein can be used in the practice or testing of embodiments of the invention, exemplary methods and/or materials are described below. In case of conflict, the patent specification, including definitions, will control. In addition, the materials, methods, and examples are illustrative only and are not intended to be necessarily limiting.

BRIEF DESCRIPTION OF THE DRAWINGS

[0010] Some embodiments of the invention are herein described, by way of example only, with reference to the accompanying drawings. With specific reference now to the drawings in detail, it is stressed that the particulars shown are by way of example and for purposes of illustrative discussion of embodiments of the invention. In this regard, the description taken with the drawings makes apparent to those skilled in the art how embodiments of the invention may be practiced.

[0011] In the drawings:

[0012] FIG. **1**A is a side view of an intravaginal device according to some embodiments of the present invention, in an exemplary position within a vaginal cavity of a human female, wherein a portion of the human female and the device positioned therein is shown in an enlarged view, and wherein the device is shown in dotted lines in an alternate exemplary position within the vaginal cavity;

[0013] FIG. **1**B is a side view of an intravaginal device according to additional embodiments of the present invention, shown in an exemplary position within a vaginal cavity;

[0014] FIG. **1**C is a cross-sectional view of the device shown in FIG. **1**A, taken in the direction of lines C-C therein;

[0015] FIG. **1**D is a side view of a device according to FIG. **2**A, according to embodiments of the present invention, the device shown in a compressed/folded/deformed configuration inside an applicator, wherein the applicator is shown in cross-section, for clarity;

[0016] FIGS. **2**A-B are perspective views of a device according to embodiments the present invention;

[0017] FIG. **2**C is a cross-sectional view of the device shown in FIG. **2**B, taken in the direction of arrows C-C therein;

[0018] FIG. **2**D is a perspective view of a device according to an alternative embodiment of the present invention, a portion having been removed for clarity;

[0019] FIGS. **3**A-B are flow charts illustrating methods of manufacturing a device according to embodiments of the present invention;

[0020] FIG. **4** is a flow chart illustrating a method of use of a device according to some embodiments of the present invention;